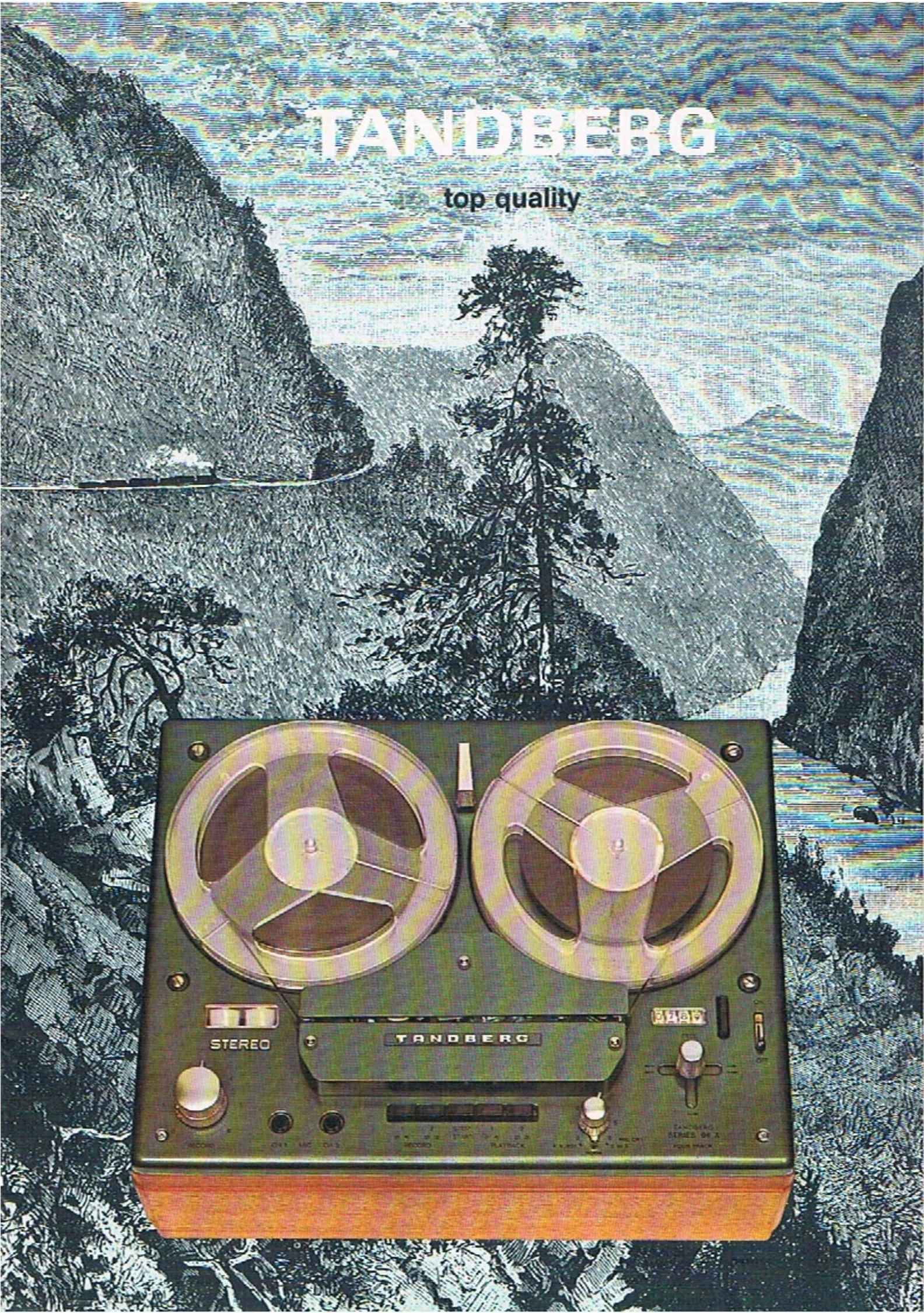
TANDBERG

top quality



HULDRA - A myth from the old Norwegian folklore. An image which reflects human striving for perfection and the unattainable.

HULDRA - in sculptor Dyre Vaa's version stands in front of TANDBERGS RADIOFABRIKK as a challenge in bronze to promote continual development.

Norway, with her deep fiords and rugged mountains hard and uncompromising, has always presented her people with a constant challenge. The climate, the sea and the mountainous terrain combine to provoke and inspire, spurring us onwards. »Forward Planning« is a modern ever-present interpretation of the ancient Nordic way of life. It follows that we always have an eye to the future. This is our heritage, and we accept a challenge which stimulates and inspires our efforts with consequent betterment of worker and product. With quiet confidence we face the future offering equipment anticipating »Tomorrow's requirements« and hoping that these modest steps towards our goal will please you.
The best will always be nearly good enough for us at Tandberg!

V. Tandberg

Norway - from North to South, 1.650 kilometres (1000 miles) of mountainous country.

Oslo - 485.000 inhabitants. 2 TANDBERG plants, about 4 and 12 miles from the city centre. Total staff approximately 1.300.

ANCIENT MOUNTAINS AND MODERN ENGINEERING

Mountainous Norway has it's own independant culture and traditions, developed and matured over the centuries. The influence of the outside world spread very slowly from valley to valley until mass communication became common, bringing in fresh impulses in every field of activity. Norwegian artists and research workers gave a new character and form to the influences from abroad.

During the last half century, telecommunication has played a considerable part in bringing information and a high standard of education to the Norwegian people. Indirectly, the mountains themselves have been a developing factor as the difficult reception conditions in Norway place extreme demands on equipment and apparatus. Right from the start, in 1933, TANDBERGS RADIOFABRIKK have always worked to perfect their models. Only the highest standard of quality can satisfy the home market. This high standard has formed the basis for world wide exports, which in 1966 amounted to 43 million Norwegian kroner. TANDBERG SOUND has become a world wide symbol for real and natural sound reproduction. The sound of TANDBERG quality is unmistakable. Try it, and hear for yourself.

TANDBERGS RADIOFABRIKK plant I and II. Commonly referred to as «the factory in a park» by visitors, these plants employ about 800 people for the production of Tape Recorders as well as research and administration divisions. The interior of the buildings blends with the open and friendly exterior, and no effort has been spared to create first class working conditions.

TANDBERGS RADIOFABRIKK III was brought into use during the second half of 1966. The production of Television sets is concentrated at this plant, which at present employs about 500 people under ideal conditions. This new plant is dimensioned to accomodate about 700 employees, and plans for the next «satellite plant» are already under way.

SERIES 8

Tandberg Series 8 is a tape recorder for the whole family - simple to operate, versatile and sturdy.
Series 8 is a monaural tape recorder with two speeds: 3-3/4 and 1-7/8 i.p.s. Operation is extremely simple: one control lever (joystick) selects fast forward and rewind, and normal forward drive for recording and playback and free position for ease of threading tape. A 4 digit revolution counter with zero indicator and indirect illumination makes it easy to re-locate any part of the tape.
An electronic beam indicator with slow backward movement permits precise control of the recording level. A pause switch instantaneously starts or stops the tape during recording and playback. The loudspeaker selector-switch provides a choice of playback through an internal 7"×4" speaker, an external speaker, or through both simultaneously. Series 8 can be used as an amplifier with an undistorted power output of 3 watts. Bass switch is provided.
Series 8 is available in 2 track or 4 track models. 4 track models have a "dual" position (allowing 2 tracks to be played back simultaneously) plus an output for "Free Head". 2 track models have "Record Monitor" which enables you to monitor the recording with earphones. Both models are available in cabinet or portable style. The cabinet models can be fitted with remote control (F-equipment) for starting, stopping and rewinding. This version is therefore ideal for recording conferences and for playing back the material when typing.
Model 82 SL is a special version of the 2 track model and has the same range of operation as the standard model. In addition it has special equipment which makes it possible to play back a programme from one track while simultaneously recording a programme on the other track. After rewind both tracks can be played back for comparison. This technique is intended first and foremost for language instruction, but can also be used for background music to speech and other double effects.
The SL model is furnished with 2 track stereo heads and with amplifiers which provides a mono recording system and a stereo playback system. This makes it possible to play back pre- recorded 2 track stereo tape as when playing back stereo, one channel is feeding the mono power amplifier and the other channel, having a pre-amplifier, is connected to an extra output amplifier.
See also technical data on page 10 and accessories on page 11.

1. Series 82 SL is ideal for language teaching. Recording can take place on the lower track while you listen to programmed instructions on the upper track. You can hear your own voice in the headphones.

2. Electrical remote control (F-equipment). Series 8 and 9 cabinet models are available with remote control equipment. A push button or a foot switch will start, stop and rewind the tape.

3. DIN-contacts for radio recording and playback through radio or for external loudspeakers. An output for Free Head (4 track) or Monitor (2 track).

4. As extra-equipment this sturdy carrying case is available for transporting cabinet models.

5. Both 2 and 4 track models are available mounted in an ABS-plastic carrying case with a removable cover. Frame of matt aluminium. All technical specifications as for cabinet models. Built-in loudspeaker in the carrying case.

SERIES 9

Tandberg Series 9 is the natural choice for anyone requiring fine monaural recording and playback from a tape recorder. Available in 2 track or 4 track models it has 3 speeds 7–1/2, 3–3/4, 1–7/8 i.p.s. It is equipped with a single control lever (joystick) for operation of tape transport, a pause switch, a bass switch, a loudspeaker selector and a 4 digit revolution counter with reset button and indirect illumination. Series 9 stops automatically by means of a micro-switch when the tape runs out. The "magic eye" precisely indicates the recording level. Moreover, Series 9 can be monitored by means of headphones. Series 9 has DIN and Phono contacts in parallel for connecting to radios, loudspeakers, and other equipment. Input sensitivity can be regulated by means of a semivariable potentiometer and thus can be adjusted to every radio-set. The loudspeaker selector provides choice of a built-in 7"×4" speaker, an external speaker, or both speakers playing at the same time.

Series 9 is well suited for public address with a microphone or record player amplifier (undistorted power output is 3 watt). Both models are available in cabinet or portable style. See picture portable version page 4. Also series 9 2 track can be obtained in the special SL-version with the special facilities as series 82SL described on page 4. See also technical data on page 10 and accessories on page 11.

1. Central control lever (joystick) for sure, easy and quick tape transport. Eliminates the possibilities of error.

2. Selection of record playback and amplify is accomplished with one knob.

3. Speed selector for 7-1/2, 3-3/4 and 1-7/8 i.p.s. can be operated while the recorder is running.

4. Carrying Bag for cabinet models. Elegant and durable plastic material. Collapsible. A separate dust cover is enclosed.

5. The pause switch instantly starts or stops recording or playback.

6. Series 9 with remote control equipment is especially suited and frequently used for recording of conferences.

SERIES 12 STEREO

Tandberg Series 12 is an elegant and advanced high fidelity tape recorder complete with stereo and monaural recording and play back systems. Series 12 is completely transistorised, available with 2 tracks or 4 tracks and has 3 speeds: 7–1/2, 3–3/4 and 1–7/8 i.p.s.

Tandberg Series 12 offers an abundance of operational possibilities: By means of external loudspeakers a power output of 2×10 watts can be attained. The built-in loudspeakers have an output of 2×3 watts. Series 12 can be connected to record players (ceramic or crystal pickups), radios and external loudspeakers by means of DIN or Phono contact. Series 12 is ideal for language and music instruction, because you can use one channel for playback while the other channel can be used for recording. Afterwards both channels can be listened to simultaneously for comparison by means of a special centre channel output socket. Furthermore, it is possible to use one channel as an amplifier while the other channel simultaneously records, e.g. for lecture or other purposes. Series 12 functions as a record player amplifier, too.

FM stereo-radio transmissions can be recorded without any interference from pilot frequencies due to the built-in FM multiplex filter. This series has double electronic beam indicators »magic eyes«, separate bass and treble controls, central control lever (joystick), 4 digit revolution counter with indirect illumination, pause switch and end-stop. It is available in first class Siamese teak cabinet or in an elegant portable carrying case.

See also technical data on page 10 and accessories on page 11.

1. The bass can be continuously increased and treble can be continuously decreased by means of individual controls.

2. Each channel has independent controls for selecting recording, playback and amplifying.

3. Loudspeaker selector with 5 positions controls both internal and external loudspeakers.

4. 2 built-in loudspeakers. 4"×7". Power output for each loudspeaker: 3 watts. Max. power output over extra loudspeakers: 2×10 watts.

5. Both 2 and 4 track models are available mounted in an ABS-plastic carrying case with a removable cover. Frame of matt aluminium. All technical specifications as for cabinet models. Built-in loudspeakers in the carrying case.

SERIES 6x STEREO - 4-head system

Tandberg Series 6x has been developed with the perfectionist in mind, for those who want only the very best. Nothing has been spared in order to give this world-famous stereo-recorder the utmost and complete versatility. The most rigorous standards have been laid down covering all essential features, such as frequency response at all speeds, wow, signal-to-noise ratio, distortion, speed tolerance, and above all reliability and simplification of operation. Separate heads are used for erase, record, playback, and in addition there is a bias head of special Tandberg design. The additional bias head and refinements of circuitry have resulted in exceptional frequency response and signal-to-noise ratio figures, the performance at the lower speeds being quite unique and setting a standard which is unlikely to be matched anywhere at the present time.
The separate record and play back heads permit AB-test (i.e. monitoring off the tape a fraction of a second after recording), and also Sound-on-Sound, when multiple high class recordings are combined on one final track in truly professional style.
A center channel amplifier enables both tracks to be played back into mono headphones when the tape recorder is used for language teaching purposes, etc.
Tandberg 6x, in its handsome teak case of advanced Scandinavian styling, has been designed to record both stereo and mono tapes and play them back with faultless quality in combination with the finest Hi-Fi amplifiers and speakers available in the world today. Other features include 3 speeds, 7 1/2, 3 3/4 and 1 7/8 i.p.s., individual mixer recording controls, separate playback controls for each channel, four digit illuminated revolution counter, pause button, optional remote control. FM Multiplex filters, for stereo radio recordings are fitted as standard to 6x models. See also technical data on page 10 and accessories on page 11.

1. 3 tapeheads for erasing, recording and playback and an additional bias head, Tandberg made.

2. A double control-knob for playback on both channels. Sound-on-sound selector with 3 positions: AB-test, normal, sound-on-sound.

3. Push-button operating of recording and playback on both channels. Electrical remote control of start and stop is possible.

4. Electronic Beam Indicators ("magic eyes") with slow backward movement ensure correct recording level.

5. Series 6x can also be operated in vertical position.

6. As optimal extra-equipment an elegant, sturdy carrying case.

SERIES 11 - Battery-operated

Series 11 is a 2-track, fully transistorised, battery-driven, monaural tape recorder designed for professional and semi-professional use. Series 11 has three speeds 7 1/2, 3 3/4 and 1 7/8 i.p.s. Operation is extremely simple, and one control lever selects fast forward and rewind and normal forward drive for recording and playback. Selection of recording, playback and monitor loudspeaker is by means of push buttons and there is also a push-button for automatic regulation of the recording level. Specially developed electronic circuitry ensures precise indication of the recording level on a VU-meter. Recording can also be controlled when monitoring through headphones, for the three heads and separate record and playback amplifiers enable monitoring off the tape (A.B. test). In addition to the separate erase, record, and playback heads a position for a fourth head is provided for pilot tone to permit movie camera synchronization. Mixing is possible as there are separate volume controls for microphone and line inputs. A separate control adjusts playback volume. A balanced input with an impedance of 200 ohms is provided for a dynamic microphone and a balanced output of 600 ohms is used when playing back into an external tape recorder for copying purposes. A monitoring output for 200 ohms headphones is also available. Playback through external loudspeakers is possible when an additional power amplifier is used. An electronic speed-regulator ensures precise speed ± 1 % during the entire life of the batteries. Power is provided by ten cells of 1 1/2 volts each. A mains unit is available as an extra. Other optional accessories include a strong practical shoulder bag, headphones, and Tandberg dynamic microphone TM4. The performance of this instrument is outstanding. The sound quality, signal-to-noise ratio, and freedom from distortion and wow are to professional standards. For further technical information see page 10.

1. Series 11 can be used with 7" spool when the smoke coloured plastic cover has been removed, or 5" spool with cover in position.

2. Elegant and practical shoulder bag as an extra.

3. Simple one control lever instant start-stop for easy and precise operations.

4. Tandberg dynamic microphone TM4 is especially suitable for use with series 11.

5. Connections for high and low level, monitoring, line output and accessories.

SERIES 13 - Cassette

Series 13 is a fully transistorised 2-track mains driven tape recorder designed for use with a one-spindled cassette of endless tape (Fidelipack system). Series 13 is available in two versions: Model 1321 – a pure playback version, and Model 1322 – both recording and playback facilities.

Three cassette sizes can be used, 300, 600, and 1200 feet reels of tape. The speed is 3-3/4 i.p.s. One programme can be played back over and over again without pauses. The length of the programme and the repetition cycle are determined by the length of the tapeloop in the cassette. The playing time on one track can vary from a few seconds to more than one hour according to the size of the cassette. The output power is 5 watts. Series 13 has an output for a 4 ohms external loudspeaker and selector for playback through the built-in 3"×8" loudspeaker, external loudspeaker and both loudspeakers at at the same time. Start and stop is operated by means of a push button. A signal lamp immediately lights up when the tape recorder is switched on. Instant start/stop is provided. Automatic stop can be programmed on the tape by means of metal foil. With Model 1322 recordings can be made on both tracks resulting in two different programmes on one cassette. There are stationary double heads and by means of a switch, one may choose between programme one and programme two. The playback head not in use can pick up pulses on the tape for automatic changing of pictures on a projector. Access to the head is through a contact at the rear of the recorder, and a Tandberg slide-synchronizer should be used for recording and playing back the pulses. Series 13 is simple to operate, reliable and has great versatility e.g. playing back recorded programmes for training in industry, providing background music, disseminating information at an exhibition, giving language instructions, etc. See also technical data on page 10.

1. At the rear of series 13 there are connections for external loudspeakers, separate amplifier, remote start/stop or slide synchronizer.

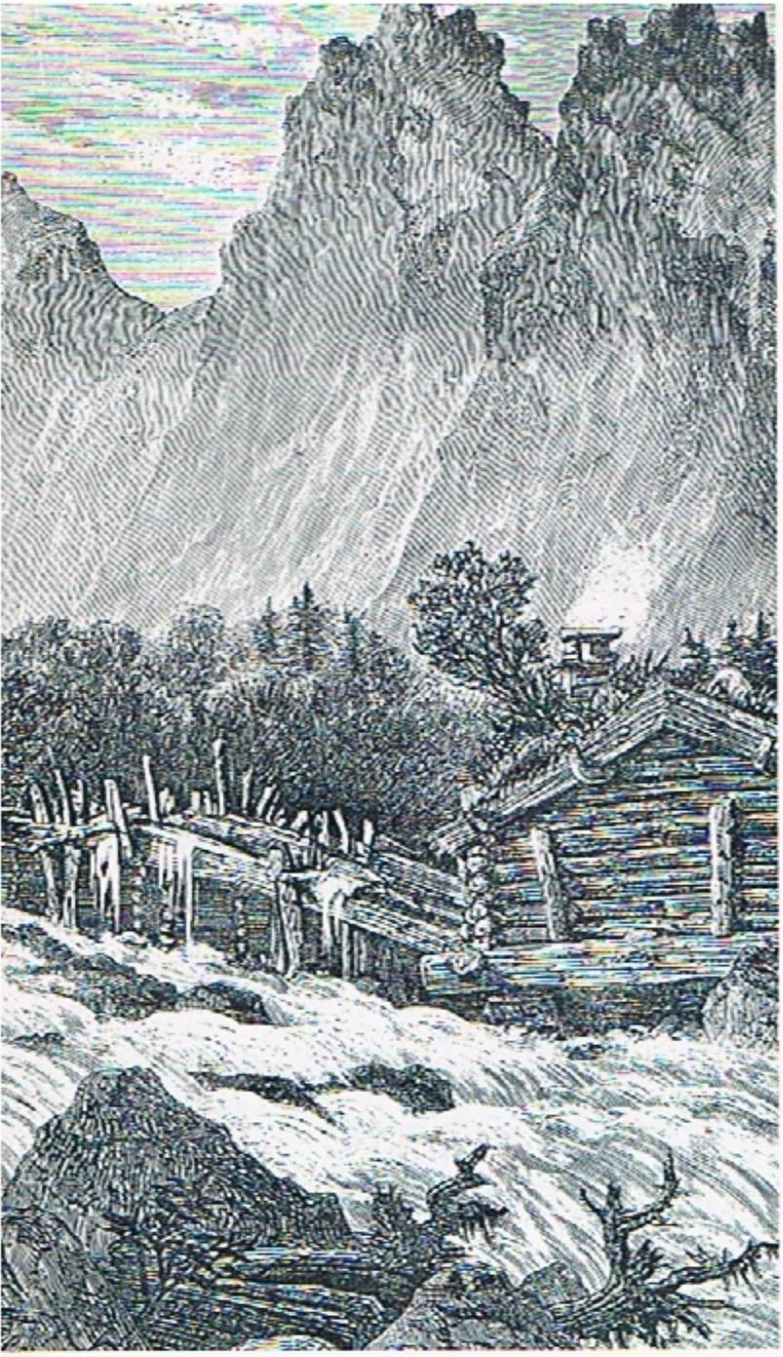
2. This picture shows the front of the playback model 1321 with all necessary operating possibilities. Reliable and simple to use.

3. Series 13 is ideal for use with a Tandberg slide synchronizer and a projector.

4. Series 13 offers you a complete background music system which can successfully be installed in all kinds of shops, coffee-houses, restaurants, waiting rooms etc.

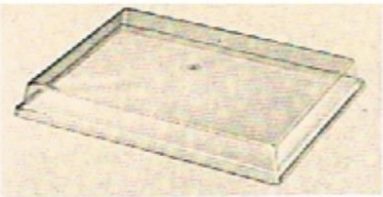
5. In the big supermarkets, at trade fairs and exhibitions, one will also find series 13 in use.

Technical data:	Series 8 Mono 4 track 2 track	Series 9 Mono 4 track 2 track	Series 12 Stereo 4 track 2 track	Series 11 Mono 2 track Full track	Serie 13–21 Mono 2 track	Series 13–22 Mono 2 track	Serie 6x Stereo 4 track 2 track
MAINS VOLTAGE 220 V, 50 Hz and USA 115 V, 60 Hz	220 V	220 V	Variable: 220/115 V	Battery operated 10–16 V	220 V	220 V	Variable: 110, 125, 145, 200, 220, 245 V
POWER CONSUMPTION	50 W	50 W	58–100 W	2–3 W	38–55 W	38–55 W	65 W
TUBES, TRANSISTORS, DIODES	ECC 83, ECL 86, EAM 86 1 selenium rectifier	ECC 83, ECL 86, EAM 86, 2 Selenium rectifiers	35 transistors, 3 diodes, 2 rectifiers, 2 EAM 86	41 transistors, 10 diodes	16 transistors, 2 diodes, 1 rectifier	17 transistors, 4 diodes, 1 rectifier	4 ECC 83, 2 ECC 82, 2 ECC 81, 2 EAM 86, 8 transistors, 2 rectifiers
SPEEDS	3 3/4 & 1 7/8 i.p.s.	7 1/2, 3 3/4 & 1 7/8 i.p.s.	7 1/2, 3 3/4 & 1 7/8 i.p.s.	7 1/2, 3 3/4 & 1 7/8 i.p.s.	3 3/4 i.p.s.	3 3/4 i.p.s.	7 1/2, 3 3/4 & 1 7/8 i.p.s.
SPEED TOLERANCE	better thann 2 %	better than 1.5 %	better than 1.5 %	better than 1 %	better than 2 %	better than 2 %	better than 0.5 %
FREQUENCY RESPONSE Record/playback curves to NAB (NARTB) standards Max. divergence from present CCIR(IEC): 1 dB in the range 70–12,000 Hz 7 1/2 i.p.s. 3 3/4 i.p.s. 1 7/8 i.p.s.	30–13,000 Hz (± 2 dB 50–9,000 Hz) 30–7,000 Hz (± 2 dB 60–4,500 Hz) In amplifier position: ± 2 dB 30–16,000 Hz	30–20,000 Hz (± 2 dB 40–16,000 Hz) 30–13,000 Hz (± 2 dB 50–9,000 Hz) 30–7,000 Hz (± 2 dB 60–4,500 Hz) In amplifier position: ± 2 dB 30–16,000 Hz	30–20,000 Hz (± 2 dB 40–16,000 Hz) 30–13,000 Hz (± 2 dB 50–9,000 Hz) 30–7,000 Hz (± 2 dB 60–4,500 Hz) In amplifier position: ± 2 dB 30–16,000 Hz	30–20,000 Hz (± 2 dB 40–16,000 Hz) 30–13,000 Hz (± 2 dB 50–9,000 Hz) 30–7,000 Hz (± 2 dB 60–4,500 Hz)	40–12,000 Hz (± 2 dB 50–9,000 Hz)	40–12,000 Hz (± 2 dB 50–9,000 Hz)	20–25,000 Hz (± 2 dB 40–18,000 Hz) 20–18,000 Hz (± 2 dB 40–14,000 Hz) 30–12,000 Hz (± 2 dB 40–8,000 Hz) In pre-amplifier position: ± 2 dB 30–30,000 Hz
WOW % R.M.S. 7 1/2 i.p.s. 3 3/4 i.p.s. 1 7/8 i.p.s.	better than 0.15 % better than 0.35 %	better than 0.1 % better than 0.15 % better than 0.35 %	better than 0.1 % better than 0.15 % better than 0.35 %	better than 0.1 % better than 0.15 % better than 0.35 %	better than 0.2 %	better than 0.2 %	better than 0.1 % better than 0.15 % better than 0.35 %
DISTORTION Recording amplifier Playback amplifier Max. recording level	< 0.5 % 3 Watt < 2 %	< 0.5 % 3 Watt < 2 %	< 0.5 % 2 × 10 Watt < 0.5 %	< 0.5 % Playback amplifier output 2.5 V 600 ohm < 0.5 %	5 W < 2 %	< 0.5 % 5 W < 2 %	< 0.5 % 1.5 V < 0.2 %
INDICATOR SENSITIVITY Max. recording level —Tape distortion −8 dB recording level—Tape distortion	< 5 % < 1 %	< 5 % < 1 %	< 5 % < 1 %	< 3 % < 0.5 %		< 5 % < 1 %	< 3 % < 0.5 %
SIGNAL TO NOISE RATIO Max. recording level 4 track 2 track Fulltrack	50 dB unweighted 53 dB unweighted	53 dB unweighted 56 dB unweighted	55 dB unweighted 58 dB unweighted	58 dB unweighted 61 dB unweighted	50 dB unweighted	50 dB unweighted	4 track 52 dB, 2 track 54 dB at 3 % dist. 7½ i.p.s. 4 track 57 dB, 2 track 59 dB at 5 % dist. 7½ i.p.s. Signal to tape noise ratio: (same as weighted noise ratio) 7 1/2 i.p.s.: 62 dB, 3 3/4 i.p.s.: 59 dB 1 7/8 i.p.s.: 56 dB
INPUT IMPEDANCE and SENSITIVITY Max. volume	Mic.: 1 M ohm/ 1.5 mV. Radio: 0.4 M ohm/ adjustable 2 mV-7V	Mic.: 1 M ohm/ 1.5 mV. Radio: 0.4 M ohm/ adjustable 2 mV-7V	Mic.: 2 × 200 ohms/0.15 mV. 2 Phono contacts per channel: High level: 1 M ohm/75 mV Low Level: 0.1 M ohm/7.5 mV 2 × 5 pin DIN contact: High Level: (PHONO) Low Level: (RADIO)	Mic.: 200 ohms 0.1 mV, balanced. Low Level: 10 K ohms/ 5 mV High Level: 200 K ohms/ 100 mV		Mic.: 200 ohms/0.1 mV Radio: 100 K ohms/5 mV Spec.: 10 K ohms/40 mV	Mic.: 2 × 5 M ohms/1.5 mV 2 Phono contacts per channel: High Level: 1 M ohm/50 mV Low Level: 0.1 M ohm/4 mV 5 pin DIN contact: Low Level: (Radio)
OUTPUTS Pre-amplifier: Impedance and voltage when unloaded Power amplifier: power output and loudspeaker impedance	Radio or amplifier 0,25 M ohm/0.75 V 3 W, 3.5 V over 4 ohms	Radio or amplifier 0.25 M ohm/0.75 V 3 W, 3.5 V over 4 ohms	Pre-amplifier: 5 K ohms/0.75 V 2 × 10 W, 6.3 V over 4 ohms Center channel: 50mW, 3.3 V over 200 ohms	Line balanced 600 ohms Headphone 200 ohms 1/4 W, 2,3 V over 20 ohms	Radio or amplifier 10 K ohms/1 V 5 W, 4.5 V over 4 ohms	Radio or amplifier 10 K ohms/1 V 5 W, 4.5 V over 4 ohms	Cathode follower: 2 Phono contacts: 2 K ohms/ 1.5 V with 5 pin DIN contact (RADIO) in parallel. 5 pin DIN contact (LINE) for copying of tape: 10 K ohms/150 mV. Center channel: 5 mW, 1 V over 200 ohms.
DIMENSIONS cabinet model: case model:	L. 15" – H. 6 1/2" D. 11 5/8" L. 15 3/4" – H. 7 1/8" D. 11 7/8"	L. 15 3/8" – H. 6 3/4" D. 11 5/8"	L. 15 3/8" – H. 7 1/8" D. 11 5/8" L. 15 3/4" – H. 7 1/2" D. 12"	L. 13" – H. 4" – D. 10 1/8"	L. 8 9/32" – H. 4 11/32" D. 9 21/32"	L. 8 9/32" – H. 4 11/32" D. 9 21/32"	L. 15 3/8" – H. 7 1/8" – D. 11 5/8"
WEIGHT (carrying case for models + 2,5 lbs) cabinet model: case model:	20,5 lbs. 22,5 lbs.	20,5 lbs.	23 lbs. 26.5 lbs.	9,5 lbs. (excl. batteries) 11,5 lbs. (incl. batteries) Case 2 lbs.	11.5 lbs.	12 lbs.	23 lbs.



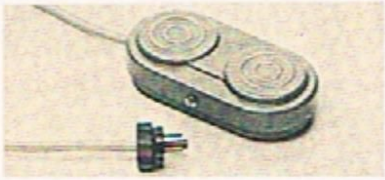
Tandberg TM 4 is a dynamic microphone especially designed for use with Tandberg tape recorder Series 11 and 12. It comes with an adjustable table stand which is removable for chest suspension or a sliding sleeve for a floor stand, and a 13 ft. (4 metre) long cord with a jack plug. The TM 4 is omnidirectional, i.e. it accepts signals equally well from all directions. Tandberg TM 4 is a high quality microphone, designed for the recording of music as well as speech. Each microphone has been individually tested and checked. Technical data: Frequency response: ± 3 dB 50–17,000 c/s. Sensitivity 0.1 mV/u. Bar (at 1000 c/s). Impedance: 200 ohms. Dimensions: Length 5-1/4" or 133 mm, Diameter 1-5/16" or 33.5 mm, Weight 1.2 lbs. or 550 grams (5 oz. or 147 grams without stand).

Tandberg TM 3 is a crystal microphone especially suited to Tandberg tape recorders. It is provided with an adjustable table stand and 13 ft. cable which enables suspension from the chest. TM 3 is an exquisite microphone well suited for recording music or speech. TM 3 is omnidirectional, i.e. it receives signals from all directions. The microphone element is fitted with an intermediate layer of foam plastic which cushions shocks. Technical data: Frequency response: ± 3 dB 30–12,000 c/s. Sensitivity 1.25 mV/u. Bar (at 1000 c/s). Impedance: 2.2 M ohms. Dimensions: 1-3/4"×7/8", Weight: 1 oz. Weight with stand: 9 oz.

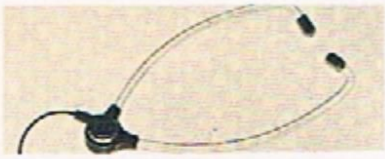


Dust Cover
for cabinet models. Slightly smoke coloured transparent 2 mm. thick polyester.

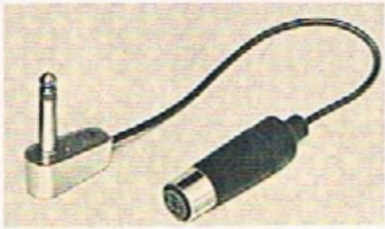
Telephone Pick-up
– light and efficient construction, attaches directly to the base of the telephone for recording telephone conversations. Available in 2 models: a high-impedance with 13 ft. lead cable and jack plug and a low impedance with 13 ft. cable and DIN-contact.



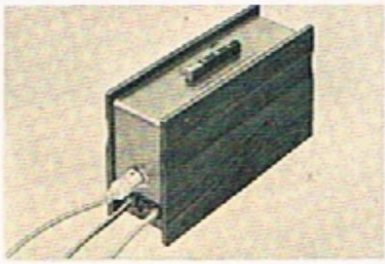
Foot Controller
for F models. For remote control of start, stop and rewind.



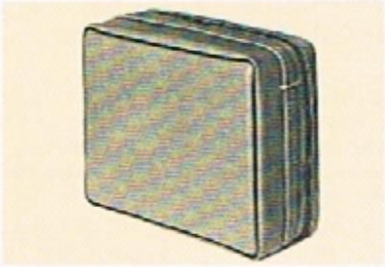
Stetoset Headphones
light and comfortable for monitoring and private listening.



Tandberg Microphone Transformer
– should be used when the Tandberg Microphone TM 4 is connected to any Tandberg Tape Recorder other than Series 11 and 12, or for that matter to any tape recorder with high ohm input. Input impedance 200 ohms. Ratio for transformation: 1:15. Available with DIN or jack plug.



Tandberg Slide Synchronizer:
Accompany your colour slides with recorded music, sound effects and commentary. The slide synchronizer can be used with any automatic slide projector and a stereo tape recorder. Tandberg Series 8, 4 track, is also especially suited. The synchronizer has an adjustment for length of impulse. Fully transistorised. Dimensions: Length 8 1/2", Width 3", Height 5".



Carrying Bag
for cabinet models. Elegant and durable plastic material. Collapsible. A separate dust cover is included. Carrying case accomodates all tape recorder cabinet models, provides good protection and can be locked. Weight 5.5 lbs.

Tandberg TM 4

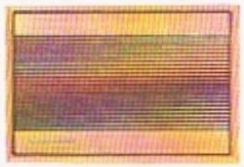
Tandberg TM 3

TANDBERG HI-FI SYSTEMS

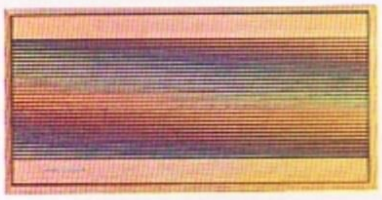
The loudspeaker is the last, and most important, link in the chain of components which determine what you will hear from your audio equipment. No chain is stronger than its weakest link! Therefore you should be most painstaking in the choice of loudspeakers which you plan to use with your other equipment.

Tandberg has over 30 years of experience in the construction of quality loudspeakers. By studying the different characteristics of the Tandberg Hi-Fi systems, you will always be able to find a loudspeaker which suits you – and which will give sound reproduction of the highest quality.

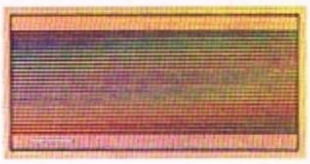
Hi-Fi 10



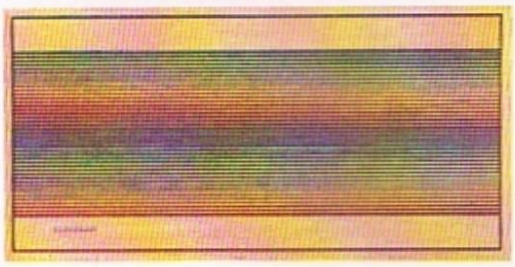
Hi-Fi 11



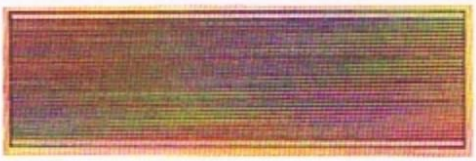
Hi-Fi 7



Hi-Fi 12



Hi-Fi 14



Hi-Fi 13

	Hi-Fi System 10	Hi-Fi System 11	Hi-Fi System 12	Hi-Fi System 7	Hi-Fi System 13	Hi-Fi System 14
Loudspeakers	Woofer 6 ½" Tweeter 2"	Woofer 6 ½" Tweeter 2"	Woofer 6 ½" Tweeter 2"	Woofer 10"×6" Tweeter 2"	Woofer 10"×6" Tweeter 2"	Woofer 10" Tweeters 2×2 1/2"
Internal volume	6,5 litres	6,5 litres	12,5 litres	25 litres	25 litres	50 litres
Impedance (at 400 c/s)	4 ohms	4 ohms	4 ohms	3,2 ohms	3,2 ohms	4 ohms
Max. continous input	8 W	8 W	8 W	8 W	8 W	15 W
Efficiency (Radiating from one side)	0,5 %	0,5 %	0,5 %	2,5 %	2,5 %	4 %
Frequency response	50-16000 c/s	50-16000 c/s	50-16000 c/s	50-16000 c/s	50-16000 c/s	45-16000 c/s
Dimensions	L: 7-1/8" B: 9-1/8" H: 9-1/8"	L: 12-5/8" D: 6" H: 8 1/2"	L: 17-3/16" B: 7 1/2" H: 8-9/16"	L: 20 1/2" B: 10" H: 10-1/4"	L: 25-9/16" B: 9-13/16" H: 8-1/4"	L: 27 1/2" B: 11" H: 13-3/4"
Type of wood	Siamese Teak	Siamese Teak Rosewood	Siamese Teak Rosewood	Siamese Teak Rosewood	Siamese Teak Rosewood	Siamese Teak

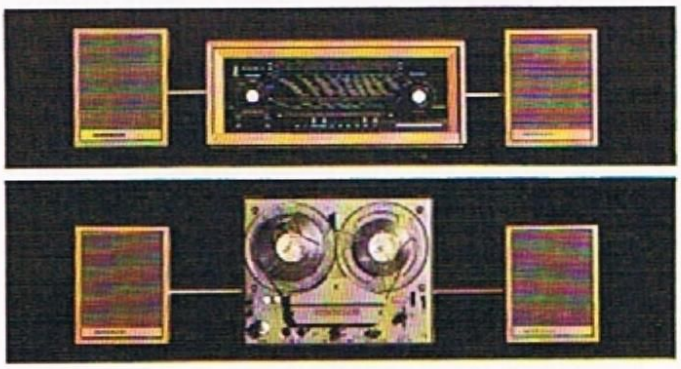
"TANDBERG SOUND" has become world famous. Tandberg's goal has always been to re-create a living sound exactly as if it were heard in a concert hall. "TANDBERG SOUND" is an expression for the most life-like sound reproduction which technical advancement has been able to achieve.

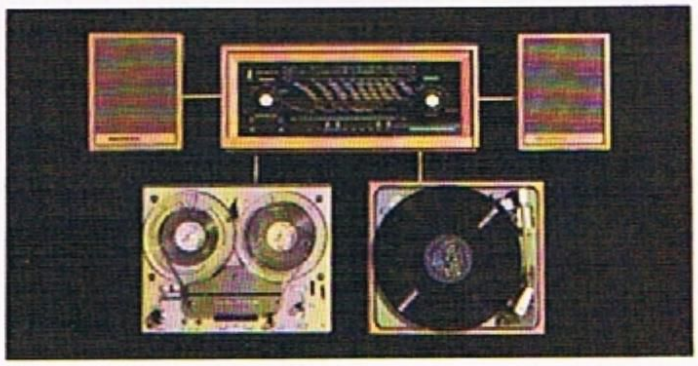
With equipment from Tandberg, you can install a Hi-Fi system to suit your particular requirements – a system which will satisfy very stringent demands The modern, practical styling blends with the furnishings of any home.

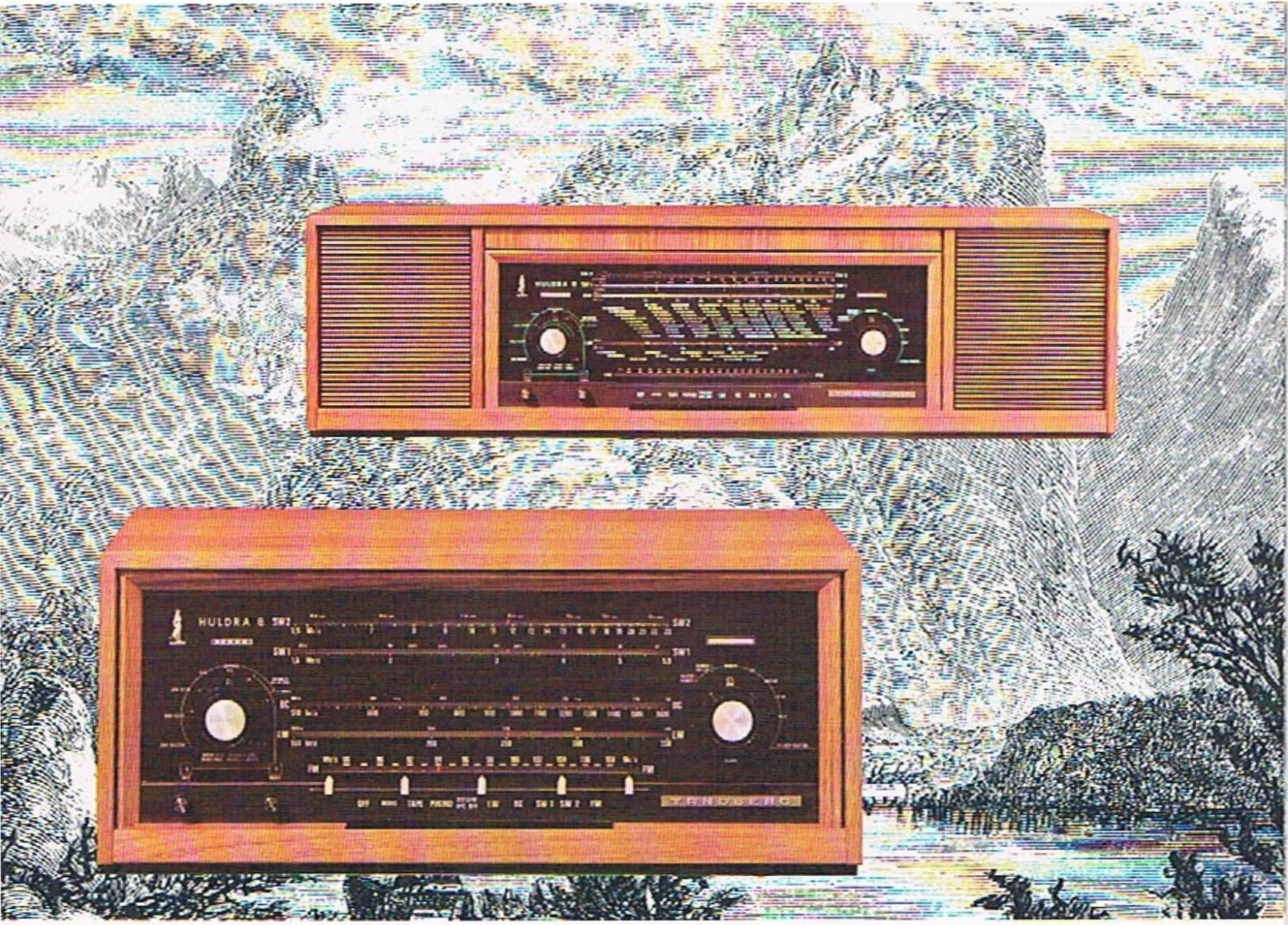
Tandberg Tape Recorder Series 12 is in itself a Hi-Fi system. The high power output (2×10 watts) enables the recorder to function excellently as a Hi-Fi amplifier. By connecting to other Tandberg Hi-Fi systems, you can acquire a sophisticated Hi-Fi system at a moderate price. If you should desire to connect a record player, series 12 has contacts for ceramic or crystal pick-ups.

Tandberg-quality also characterizes the unsurpassable Huldra 8 – a high quality radio with 4 AM bands, 2×10 watts Hi-Fi amplifiers with an FM-tuner and separate bass and treble controls in addition to amplifiers for magnetic, ceramic and crystal pick-ups. Together with Tandberg Recorder Series 6x and Tandberg Hi-Fi loudspeakers, you can construct an advanced Hi-Fi system which will be above criticism.

The expression "High Fidelity" is another way of saying quality. You are sure of quality when you choose Tandberg.







HULDRA 8 - tuner/amplifier

Huldra 8 is unique in all respects. It has a wealth of advanced technical features – this is the receiver for the most discriminating of music-lovers.

Huldra 8 has a FM tuner with provision for stereo multiplex reception and can be supplied with decoder at an option. It has two 10 watts Hi-Fi amplifiers (20 watts total). There are built-in pre-amplifiers for magnetic, ceramic and crystal pickups. AM-radio with 4 wave bands. Intercommunication system (listen-respond system).

In spite of its great versatility, operation of Huldra 8 is simple and logical. It has large, easy to read dials, duplex tuning, station markers and automatic frequency control for FM. For AM there is a 9 Kc/s interference-filter and selectivity switch. Tone regulation is achieved either by a tone switch, selecting fixed sound curves, or by continuously variable bass and treble controls. Huldra 8 is available in two versions:

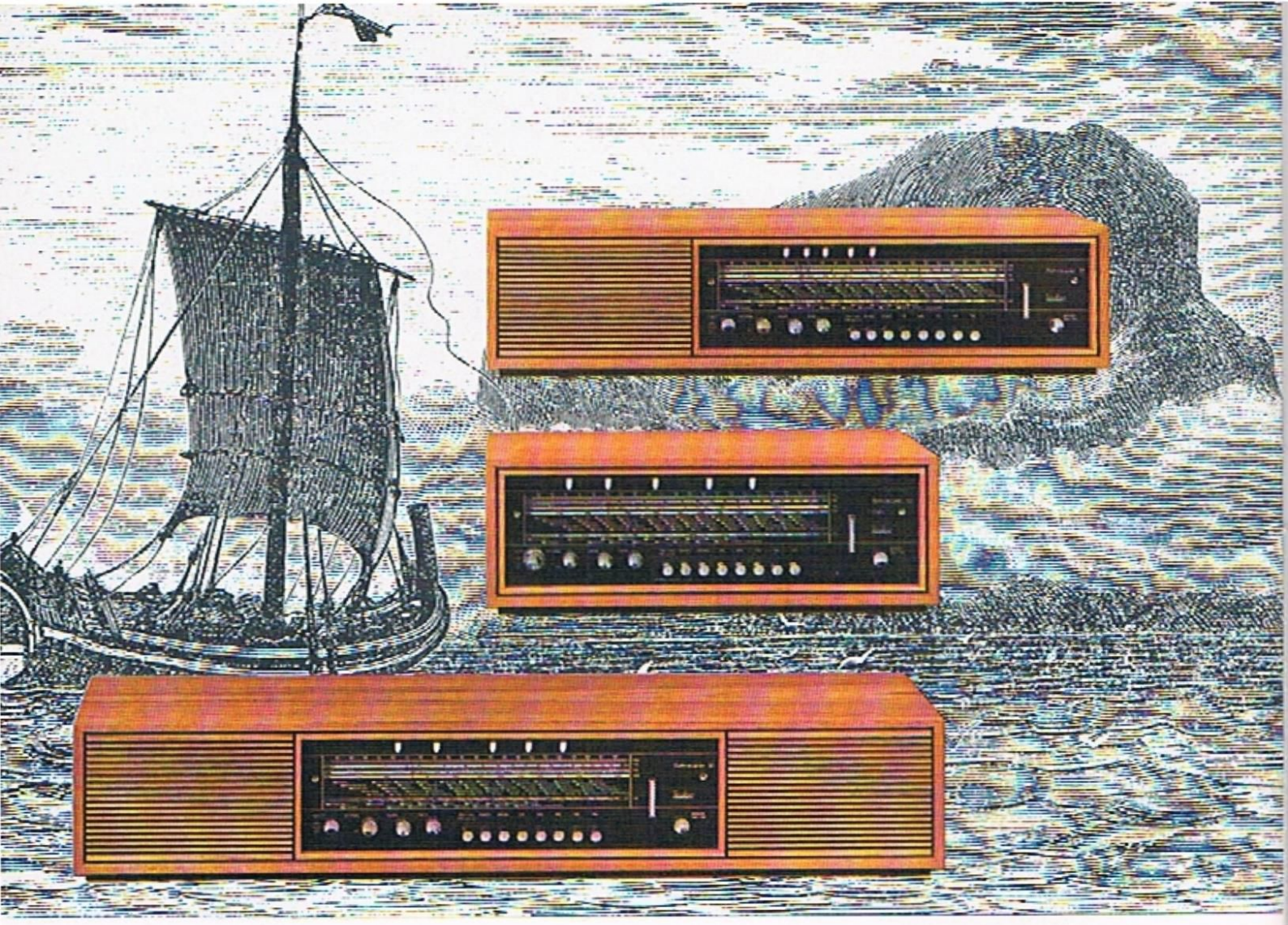
Huldra 8–55 is designed for use with external Hi-Fi loudspeaker systems, therefore the dimensions are smaller. You can select the Hi-Fi loudspeakers for your own requirements.

Huldra 8–55 fits well into wall sections or shelves. The cabinet is available in Rosewood or Siamese teak. Dimensions: Length: 19–3/4", Height 8–5/7", Width 10".

Huldra 8–56 is an exclusive table radio in the luxury class, incorporating two Hi-Fi loudspeakers in scientifically designed acoustic pressure chambers which are capable of perfect full range stereo reproduction. Each system consists of a woofer and a tweeter with cross-over network. Full bass reproduction down to 60 c/s is thus attained. The handsome cabinet is available in Siamese teak. Dimensions: Length 32–3/4", Width 10", Heigh 9–3/8".

Technical specifications:

Tubes: 5 tubes, 20 transistors, 6 diodes, 3 rectifiers and printed circuits. **5 Wavelengths:** Longwave 150–350 Kc/s (2000–857 m), Mediumwave 510–1610 Kc/s (590–186 m), Coastal wave 1.6–5.9 Mc/s (187–50.9 m), Shortwave 5.9–23 Mc/s (50.9–13 m), FM band 87.5–108 Mc/s (3.44–2.78 m). **FM-Multiplex:** Huldra is complete with or has provision for stereo radio reception. **Duplex-Tuning:** one tuner for FM and another for AM. The same tuning knob is automatically connected to the correct tuner when the band is selected. The **FM-tuner** has 3 tuning circuits with band-pass filters in the high frequency stage. The IF amplifier has 4 stages with band-pass filters and discriminator. **Station-markers:** 5 moveable arrows facilitate FM station tuning. **Automatic Frequency Control (A.F.C.) for FM:** can be switched on or off as desired. **Interference filter:** 9 Kc/s for AM. **Selectivity Switch:** one position for distant AM stations and another for local AM stations. **Tone controls:** a tone selector for fixed frequency characteristics plus continuously variable bass and treble controls. **Amplifiers:** 2 transistorised power amplifiers: can be operated in parallel for the same programme or can be used independently for 1 stereo or 2 monaural programmes. **Frequency Range:** 20–20.000 c/s. **Power Output:** 2×10 watts. **Amplifier for Magnetic Pickup:** A 2 channel pre-amplifier with 4 transistors will drive the output amplifiers to their full rated power when used with a low output magnetic pickup. The amplifier has an input selector switch for magnetic, ceramic, and crystal pickups. **Connections:** DIN and Phono contacts. Optimum impedance at all speaker terminals is 4 ohms. **10 Push-Buttons** for band selection, recorder, gramophone, mono-stereo, and selectivity for AM & AFC for FM. **Speaker Selector:** 3 functions: A. Choice of internal speakers only, external speakers only, or internal and external speakers at the same time. B. It is possible to feed one mono-programme to internal speakers and another to external speakers. C. (Listen-respond) for intercommunication. **Double Programs:** One amplifier can be connected to a radio while the other is connected to a recorder or record player. The intercom can be tuned to »listen« (babysitter) while you listen to the radio, tape recorder, or record player. **Power Supply:** Easy change-over for 115, 130, 220 and 240 volts, 50–60 c/s A. C. **Power Consumption:** Normal 55 watts continuous run at rated power 2×10 watts: 85 watts.



SØLVSUPER 10

This radio set is designed to give you great pleasure. It offers you natural sound reproduction and the attractive design with its small dimensions will be becoming in any home.
Sølvsuper 10 has 5 wave bands: long-, medium-, coastal-, short and FM-band (87,5–108 MHz).
Operation is simple and logical. The easy-to-read dial makes it simple to select the station wanted. There is an electronic beam indicator, automatic frequency control (AFC) on FM and 5 moveable arrows facilitate tuning on FM. There are 8 push buttons for band selection, tape recorder, gramophone and AFC on FM. Tone regulation is achieved by continuously variable bass and treble controls. Loudspeaker selector for choosing between the built-in speaker, external speaker or both at the same time is provided.
Sølvsuper 10 is available in 3 versions:

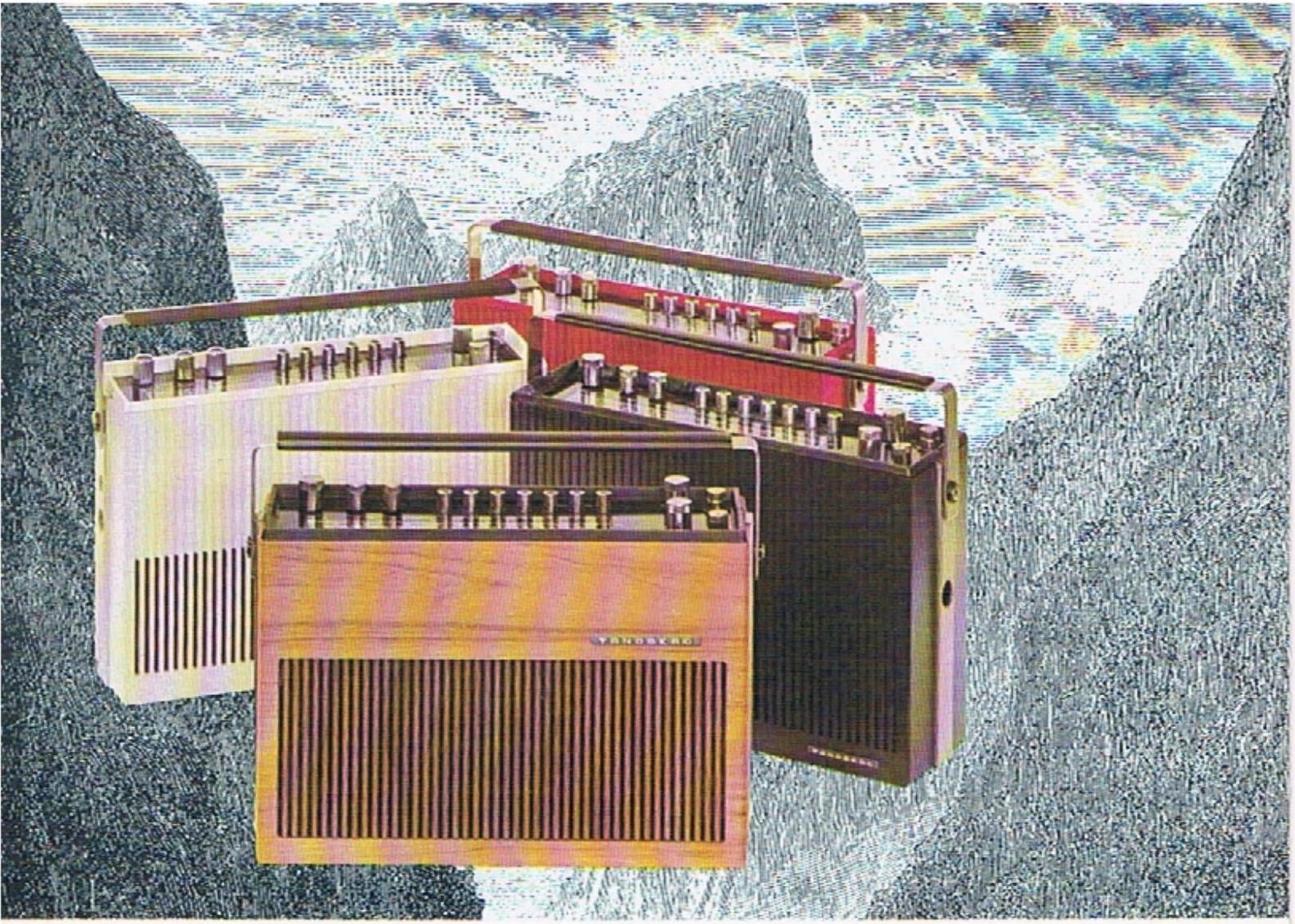
Sølvsuper 10–70
A mono radio set with 8 watt output power. A specially designed loudspeaker mounted in pressure chamber secures pure sound reproduction. DIN connections for radio, tape recorder, gramophone and external speakers. Available in teak and rosewood. Dimensions: length 21 3/4", height 5 1/4", width 9".

Sølvsuper 10–72
A quality stereo radio and amplifier at a reasonable price. Same wave bands and operating possibilities as Sølvsuper 10–70, but a double volume knob for the amplifiers. 2 pressure chamber loudspeakers are provided but there are also possibilities for connecting external speakers. Output power 2×6 watt. Available in teak or rosewood. Dimensions: length 28 1/2", heigth 5 1/4", width 9".

Sølvsuper 10–71
has exactly the same possibilities as 10–72 but is designed for use with external speakers. Available in teak or rosewood. Dimensions: length 15", height 5 1/4", width 9".

Technical specifications Sølvsuper 10–70
4 tubes, 9 transistors, 5 diodes and 2 rectifiers. Printed circuit boards. **5 wave bands:** Longwave 150–350 KHz (2000–857 m), mediumwave 510–1610 KHz (590–186 m), coastal wave 1610–5850 KHz (186–51.3 m), shortwave 5.85–23 MHz (51.3–13 m) and FM-band 87.5–108 KHz (3.43–278 m). **8 Push-Buttons** for band-selection, tape recorder, gramophone and AFC on FM. **Station markers:** 5 moveable arrows facilitate tuning on FM. **Automatic frequency control on FM. Low frequency circuits:** Transistorized power amplifier (class B). **Frequency range:** 30–20.000 Hz (–3 dB at 40 Hz and 17.000 Hz). **Output power:** 8 watts. **Tone controls:** Continuously variable bass and treble controls. Volume control with physiological bass compensation (loadness). **Connections:** DIN-contacts for connections of tape recorder and gramophone. Gramophone with crystal- or ceramic pick-up can be used. Diode output for tape recording from radio. LF-amplifier with 2 loudspeaker outputs (internal- and external speaker) with DIN-contacts. Optimum load 4–5 ohms. **Loudspeaker:** 4"× 6" special speaker mounted in pressure chamber. **Mains supply:** 220 V 50/60 Hz. **Power consumption:** at normal output power: 36 watts. At maximum output power: 48 watts.

Technical specifications Sølvsuper 10 stereo.
As for Sølvsuper 10–70 with the following changes: 4 tubes, 16 transistors, 6 diodes and 2 rectifiers. **Low frequency circuits:** 2 transistorized power amplifiers (class B). Individual volume control for each amplifier. **Output power:** 2×6 watts. Connections: each LF-amplifier has 2 loudspeaker outputs with DIN-contacts. Optimum load 4–5 ohms. **Power consumption:** At normal output power: 45 watts. At maximum output power: 66 watts.



PORTABLE RADIO

Elegant, dependable and efficient. Can be used anywhere. Ideal as a car radio: when the special lockable bracket is mounted under the dash board, you need only slide it into place where it automatically connects to the car aerial and battery. There is provision for an extra speaker (rearseat speaker). The bracket has extra power amplifiers which give additional volume to compensate for road noises.

Tandberg Portable Radio 3–1 has 4 wave lengths: longwave, mediumwave, shortwave and an extended FM band 87.3–108 Mc/s. The FM band covers all the range of frequencies which are used by European and American FM stations. Separate tuning for FM. For shortwave there is a special knob for fine tuning making it easy to select exactly the right station. The dial is illuminated by a push of a button. Sensitivity is great in all wave lengths. There is an extra-long telescopic aerial for FM and shortwave and a frame aerial for the long and mediumwave lengths.

Tandberg Portable Radio has a large special elliptical loudspeaker which gives excellent sound quality. Continuously variable bass and treble controls work independently of each other. There are DIN-contacts for a record player or recorder. Tandberg Portable Radio 3 uses two flat 4.5 volt batteries which can be easily changed. In addition operation direct from AC mains is by means of an optional mains unit. The cabinet is of superb walnut. An elegant carrying bag with shoulder strap is available as an extra.

Available in two versions:

Tandberg Portable Radio 3–1: As described above.

Tandberg Portable Radio 3–3: Similar to TP 3–1 with the exception that the shortwave and car connection possibilities have been removed. Available in walnut, but also in a range of attractive colours.

Technical specifications: This AM/FM combination portable and car radio is fully transistorised with 14 transistors, 5 diodes, and a voltage stabilising-cell. 4 wave lengths: longwave 145–320 Kc/s (2068–937 m), mediumwave 518–1600 Kc/s (579–187.5 m), shortwave 5.8–18 Mc/s (51.7–16.2 m). FM band 87.3–108 Mc/s (3.43–2.78 m). Separate tuning for AM and FM. Amplified automatic volume control (AVC) on AM. Separate knob for fine tuning on shortwave. Automatic fine-tuning AFC on FM. Frame aerial for long and medium wave. Telescopic aerial for FM and shortwave. Contacts for connecting to external aerials. DIN-contacts for gramophone and recorder. Printed circuits. Continuously variable bass and treble controls. 8″×3–1/2″ elliptical loudspeaker, about 1.2 watt power output. Push button dial ilumination. 2 flat 4.5 volts batteries in series (transistor batteries should be used). Dimensions (without handle): Length: 11″. Width: 3–1/4″. Height: 7–3/8″. Weight with batteries: 4.8 lbs. Electrical connection to car is possible by means of the lockable bracket which can be firmly mounted under the dash board. Automatic connection to the car aerial, battery and external speaker. Dial illumination. Extra amplifier in bracket: 2.5 watts (6 volts), 3 watts (12 volts).

TANDBERG has a world wide reputation for quality. This quality finds its source in every phase of production. Continous research, perfect construction plus incessant testing of components and finished products are prerequisites for high level quality. But it is of primary importance that the demand for quality begins with the people who work at Tandberg. TANDBERGS RADIOFABRIKK A/S have more than 1300 employees in the Oslo area alone. The positive effort and skill which these people have given has been decisive in maintaining and extending Tandberg's reputation. Therefore great emphasis is placed on creating and maintaining an ideal working atmosphere. Even the architectural design of the plant and its location in this typical Norwegian setting has been carried out with maximum consideration given to creating a pleasant and friendly atmosphere. Tandberg working conditions and social benefits are unique in the world.

Your Retailer:

TANDBERG products are sold by specialist dealers who have extensive technical knowledge. Therefore every TANDBERG dealer can give you valuable advice and exact instructions. He will gladly be of assistance to you.

EXCLUSIVE GERMAN FACTORY REPRESENTATIVE

per kirksaeter gmbh

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All tape-recorders and components are covered by a six months guarantee. Before delivery each tape-recorder passes a second control of all adjustments. Our technical staff was trained in the TANDBERG factory and our control- and service procedures have been organized by TANDBERG engineers. For technical enquiries and demonstrations please contact our service-department.

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